Department of Agriculture

ıtion Service

Program Aid Number 1405

'Tomahawk' indiangrass

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'Tomahawk' indiangrass, *Sorghastrum nutans* L. Nash, has been released cooperatively by the Soil Conservation Service (SCS) and the Agricultural Research Service (ARS) of the United States Department of Agriculture (USDA) and the North Dakota, South Dakota, and Minnesota Agricultural Experiment Stations.

Tomahawk indiangrass is a composite of three seed collections that were made in 1961 from native stands in Dickey and Sargent Counties in southeastern North Dakota and in Marshall County in northeastern South Dakota.

Indiangrass, a native perennial, warm-season grass, is a major component of the tall grass vegetation which once dominated the prairies of the central and eastern United States. It can be used singly or in mixtures for livestock forage on rangeland, pastureland, and hayland. In addition, indiangrass is excellent for wildlife habitat, critical-area seeding, roadside cover, and erosion control.

Because cool-season grasses such as smooth bromegrass and crested, tall, intermediate, and pubescent wheatgrasses predominate in many areas, forage is often in short supply during summer months. Using sudangrass or sorghum-sudan hybrids as annual forage crops improves summertime forage. These are very productive, although they must be reestablished each year. Indiangrass grows rapidly between June 1 and late summer and provides large quantities of forage for livestock when high temperatures retard the growth of cool-season species. Proper management of cool- and warm-season plants maintains high performance indefinitely.

Description

Indiangrass grows 3 to 5 feet tall. Even as a young plant, it can be distinguished from other native grass species by the "rifle-sight" ligule at the point where the leaf attaches to the stem. The leaf blade also narrows at the point of attachment. The seed head is a single, narrow, plumelike panicle of a golden brown color. The seed is light and fluffy. Tomahawk is typical of the species with regard to these characteristics.

Performance

The phenology, forage quantity, persistence, and wildlife habitat potential have been documented in advanced evaluation studies and field plantings under actual use conditions in North Dakota, South Dakota, and Minnesota. Tomahawk has demonstrated outstanding winter hardiness, persistence, and higher seed production than other accessions. Forage production equals that of the cultivar 'Holt' and exceeds that of 'Osage,' 'Oto,' and 'Rumsey' at northern locations. Production at five locations over a 5-year period averaged 4,000 pounds per acre. At northern sites, the cultivars Holt, Osage, Rumsey, and Oto from southern origins produced more forage in short-term plantings. Over a period of several years, however, pressure from grazing, drought, and winter injury reduces stands and decreases forage production of the southern cultivars. Flowering (anthesis) data recorded at Fergus Falls, Minnesota, show Tomahawk to be 33 days earlier in maturity than Holt. It is 71 days earlier than Oto and 82 days earlier than Osage and Rumsey. Oto, Osage, and Rumsey do not consistently produce viable seed when grown at northern latitudes.

Establishment

Indiangrass and other warm-season grasses require a soil temperature above 50 °F for satisfactory germination. Within the area of adaptation, the optimum time to plant is from early May to late June. Dormant seedings have not been successful. The seed is light and has small awns attached. Debearding the seed removes the awns to produce a free-flowing product. Seeding rate is 7 to 10 pounds of pure live seed per acre.

The planting site should be free of perennial or noxious weeds. A moist, firm seedbed is essential. Firming the soil with a roller packer before seeding helps to ensure that the seed is placed at the recommended seeding depth of one-half to three-fourths of an inch. Drills equipped with agitators, double disk openers, packer wheels, and depth bands provide the best results for nondebearded seed. Broadcast-packer seeders work well for debearded seed. Companion crops are not recommended. Grazing should be deferred during the establishment year.

The application of fertilizer at seeding time is not recommended because it will stimulate weed growth. Clipping and 2,4–D help control broadleaf weeds the first year. Use the 2,4–D according to label instructions.

Seed Production

Stand establishment usually can be accomplished in one growing season. Seed production can be expected the second year and will continue indefinitely. The fields should be established in rows that are 30 to 42 inches apart. The first year, cultivation and 2,4–D can be used to control broadleaf weeds and unwanted cool-season grasses according to label instructions. After the year of establishment, apply Atrazine at the recommended rate, according to label instructions. Apply irrigation water at the boot and immediately after the flowering stage. Apply 60-80 pounds of nitrogen per acre and phosphorus and potassium according to soil tests. The seeds mature in early September. Harvesting can be done by windrowing when the seed is in the hard-dough stage; direct harvesting or stripping can be done when the seed has fully matured. When direct harvesting, seed must be dried as soon as possible because damage may take place from heating. Average purity and germination is 85 and 75 percent, respectively. Under irrigation at the SCS Plant Materials Center, Bismarck, ND, seed yields averaged 200 pounds of pure live seed per acre.

Management

If well-established stands of indiangrass are properly managed and maintained, they should not require replanting. Poor stands can be rejuvenated by using proper management practices, such as controlled grazing, the application of recommended rates of herbicides and fertilizer, and prescribed burning before the beginning of spring growth. Phosphorus and potassium fertilizer should be applied according to soil tests. Nitrogen should be applied at the rate of 50 to 75 pounds per acre when regrowth in the spring reaches 4 to 6 inches.

Forage quality will remain high until the seed head

emerges. Grazing should begin from mid to late June when grasses reach 12 to 16 inches in height. Overgrazing can damage the stand and should be stopped when the plants are grazed to within 6 inches of the ground. If regrowth of more than 12 inches takes place, the plants can be regrazed to 6 to 12 inches. Leaving this much stubble before frost allows the plants to store carbohydrates and ensures the production of vigorous plant growth in the spring.

Adaptation

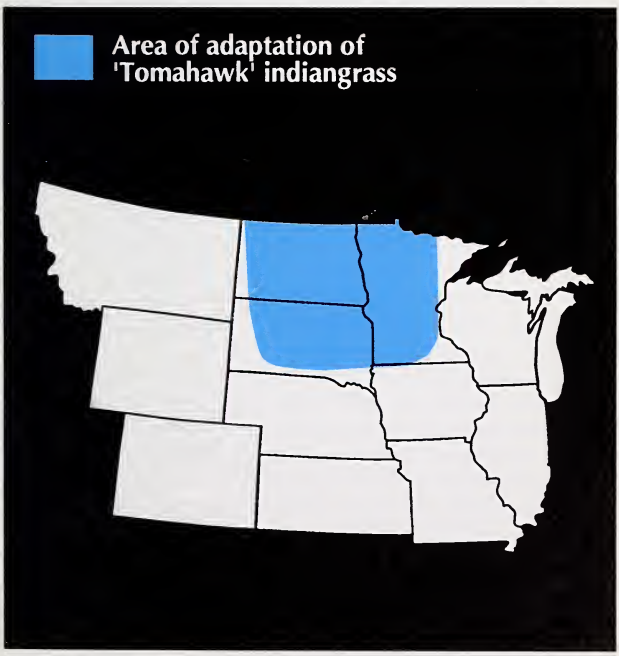
The known climatic adaptation of Tomahawk is the shaded area on the map. It is best suited to fertile, well-drained soils. It is not well adapted to highly saline or alkaline conditions. Although Tomahawk is better suited to moderately wet soil, it will withstand droughty conditions and can be used on such sites for ground cover. Precipitation for the area of adaptation ranges from 15 to 30 inches.

Availability

The Agricultural Research Service (Northern Great Plains Research Laboratory, Mandan, ND 58554) maintains the breeder seed of Tomahawk indiangrass, and the Soil Conservation Service Plant Materials Center (P.O. Box 1458, Bismarck, ND 58502) maintains the foundation seed.

For more information on availability and use of Tomahawk indiangrass, contact your local SCS or conservation district office. All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

August 1988


Area of adaptation of
'Tomahawk' indiangrass